

## PRODUCT WARRANTY

---

Safe Home World DVR's carry a warranty of 6 months on labor and 1 year on parts. Please contact Technical Support for any warranty related issues. To benefit from this warranty, you must return your product's Registration Card included with the unit.

## TECHNICAL SUPPORT

---

Technical Support contact information:

Company name: Safe Home World, Inc.  
Telephone: (925) 463-0898 Ext. 7743  
E-mail Address: [help@safehomeworld.com](mailto:help@safehomeworld.com)  
Web site address: [www.safehomeworld.com](http://www.safehomeworld.com)

Check web site for hours of operation.

# User's Manual



**4-Channel DVR (Digital Video Recorder)**

**This manual describes the basic operation of several Safe Home 4-Channel DVR models. Please refer to the table on page 5 that describes the features of each DVR model. Refer to the product's packaging for the model number of your DVR unit.**



© 2004 Safe Home World, Inc.

**Chapter 1: Overview of DVR Models**

Features Chart for DVR Models .....	5
-------------------------------------	---

**Chapter 2: Getting To Know Your DVR**

DVR Front Panel .....	6
DVR Rear Panel .....	8
DVR Side Panel .....	9

**Chapter 3: Getting Started**

Overview of Set Up Procedures .....	10
-------------------------------------	----

**Chapter 4: Hardware Installation**

Hard Disk Drive Installation .....	12
Connecting DVR to Your TV Set or Monitor .....	14
Camera Installation .....	15
Sensor Installation .....	18
Alarm Installation .....	19
LAN-DVR Connection (HT-Series DVR Models Only) .....	20
Power Connection .....	21

**Chapter 5: DVR Menu**

Main Menu .....	22
Camera Select .....	23
Record Select .....	24
Record Mode .....	24
Record Frame Rate .....	25
Video Quality .....	25
Record Schedule .....	26
Sub Menu .....	27
(1) PASSWORD CHANGE .....	28
(2) TIME SET .....	28
(3) AUDIO CONTROL (HT-Series DVR Models Only) .....	29
Hard Disk Drive Setup .....	30
Hard Disk Drive Format .....	31
Sensor Setup .....	33
Network Setup (HT-Series DVR Models Only) .....	35
<b>Controlling Playback, Viewing and Record View:</b>	
Playback Control By Time Search .....	38
View Control During Playback .....	40
Record View .....	40
Reset to factory default settings .....	41

**Chapter 6: Trouble Shooting Guide**

.....	42
<b>Appendix:</b>	
DVR Controller Technical Specifications .....	45
Recording Time Table .....	46
Product Warranty .....	48
Technical Support: .....	48



## GENERAL SAFETY AND PRECAUTIONS

Safe Home World DVR's are manufactured to satisfy international safety standards. Review the following safety precautions to avoid injury and prevent damage to the DVR or any products connected to it.

1. Use a proper power source. Do not operate this product from a power source that applies more than the specified voltage (90~260 VAC).
2. Never insert anything metallic into the DVR case - this can cause electric shock.
3. Do not operate in wet & dusty conditions. Keep product surfaces clean and dry. Avoid placing the DVR in areas like a damp basement or a dusty hallway.
4. Do not expose this product to rain or use near water. If the product gets wet, unplug it and contact an authorized dealer immediately.
5. To clean the outside case of the DVR, use a lightly dampened cloth (no solvents).
6. The DVR generates heat during operation. Place the DVR in a well ventilated area. The DVR has a built in fan to properly ventilate the system. Do not block air holes (bottom, upper, sides and back) of the DVR case.
7. Do not operate with suspected failures. If there are any unusual sounds or smells coming from the DVR, unplug it immediately and contact an authorized dealer or service center.
8. Do not attempt to remove the top cover.  
**Warning:** Removing the DVR's cover can cause severe electrical shock.
9. Handle DVR box carefully to avoid damaging the product. If you accidentally drop your DVR on any hard surface, it may cause a malfunction. If the DVR doesn't work properly due to physical damage, contact an authorized dealer for repair or exchange.
10. Use standard lithium cell battery. (NOTE: Manufacturer has preinstalled battery.)  
The standard lithium cell 3v battery located on the mother board should be replaced if the time clock does not hold its time after the power is turned off.  
**Warning:** Unplug the DVR before replacing battery or you may be subjected to severe electrical shock. Properly dispose of old batteries.  
**Caution:** Risk of explosion if battery is replaced by an incorrect type. Do not discard lithium batteries into the trash can or into fire. Dispose in accordance with local waste regulations.
11. Some DVR models use a DC adapter because the power supply is outside the DVR cabinet. Use only the DC adapter that is supplied.

### Information to user

The user's manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at their own expense.

## Chapter 1: Overview of DVR Models

The Safe Home World DVR is a Digital Security System designed to record/retrieve up to 4 channels of video at the same time. It adopts a digital image compression technology to compress the input channel video streams, and uses a hard disk to record the compressed video stream. Please refer to the following chapters for set up and usage instructions:

- Chapter 4 - HARDWARE INSTALLATION explains how to install the DVR and other accessories in your home.
- Chapter 5 - DVR MENU explains how to operate/manage the DVR.

Each of the DVR models covered in this manual feature the same user interface. However, the table below summarizes the key differences between each model.

### What Digital Video Recorder Model do I have?

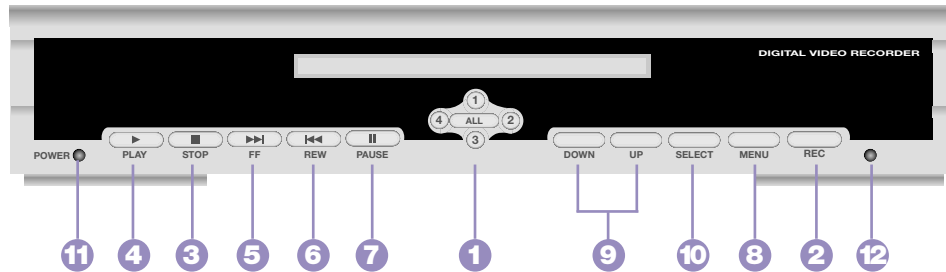
Refer to the product's packaging for your DVR's model number.

Model Number	Storage Capacity*	Hard drive Included	Remote Viewing & Audio Recording
Y000-JN03-16	120 GB	Not included	No
S000-JN03-16	120 GB	Not included	No
E-N000-JN03-16	300 GB	Not included	No
E-K080-JN03-16	300 GB	80 GB HDD	No
MT-J000-JN03-16	1,000 GB	Not included	No
MT-K000-JN03-16	1,000 GB	Not included	No
MT-RTB00-JN03-16	1,000 GB	Not included	No
HT-Remote-JN03-16 **	1,000 GB	Not included	Yes

\* Represents the largest capacity hard disk drive that can be installed into the DVR unit.

\*\* Note: If you are using the HT-series DVR model such as HT-Remote-JN03-16, refer to the Remote DVR Client Software Manual for additional details. The Remote DVR Client Software Manual describes how to set up the DVR for remote access and a detailed overview of the Client Software that ships with the unit.

### DVR FRONT PANEL



This chapter briefly describes the button functions on DVR front panel. Buttons are used to operate the DVR's basic functions, such as recording, playback, fast-forward, reverse, etc. For more details on the set-up and operation of the DVR,, refer to Chapter 5 - DVR MENU.

#### 1 ALL 1 2 3 4

The channel select buttons allow you to select camera images in live recording or playback mode. The default display setting of the DVR is set to "ALL" which displays all 4 channels of video at the same time. The following options are available for displaying video images on your monitor:

**ALL:** Displays all 4 channels of video in quad screen mode

**1-2-3-4:** Displays each channel of video individually in full screen mode.

For more information on selecting channels, see Chapter 5 - CAMERA SELECT.

#### 2 REC

Press "REC" button to start recording. The following symbol will display on the channels that are currently being recorded: ■

#### 3 ■

To stop playback or recording, press the STOP button. When you press the STOP button while the DVR is recording, the recording symbol ■ will disappear.

#### 4 ▶

After recording, press the PLAY button to start video playback. Playback will start with the oldest unread event and then continue playing sequentially through the contents on the hard disk drive. If there is no unread event, then it plays the latest recorded video. For more detailed information about playback by Time Search function, refer to Chapter 5 - PLAYBACK CONTROL.

#### 5 ▶▶

To playback recorded video faster, press the FAST FORWARD button.

There are three levels of fast forward playback speed.

Press FF button 1 time: Video plays two times faster (x2) than the normal play.

Press FF button 2 times: Video plays three times faster (x3) than the normal play.

Press FF button 3 times: Video plays four times faster (x4) than the normal play.

To change the fast forward play back speed level, press the FAST FORWARD button again.

#### 6 ◀◀

To play recorded video backward, press the REVERSE PLAYBACK button.

The fast forward and reverse playback speeds will vary depending on the frame rate and record quality settings, as well as the number of channels recorded.

#### 7 ||

To pause video playback, press the PAUSE button.

Then the video displaying will be stopped.

To continue playback, push the PLAY button.

#### 8 MENU

To display the on-screen menu, press the MENU button.

#### 9 DOWN UP

To change a menu field or change the DVR configuration values, use the UP and DOWN buttons.

#### 10 SELECT

Use the SELECT button to confirm a menu option or value in a menu field.

#### 11 POWER Light

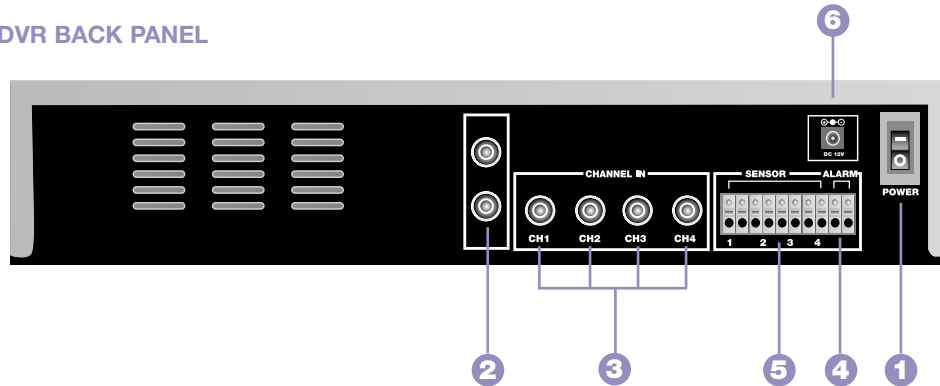
This light indicates the DVR unit is powered up.

#### 12 RECORD light

This light indicates the DVR is recording.

(This light is not available for model number Y000-JN03-16.)

### DVR BACK PANEL



For more details on installation, refer to Chapter 4 - Hardware Installation.

- 1 POWER ON/OFF SWITCH**  
Use this button to turn on the DVR.
- 2 VIDEO OUT**  
Connects the DVR to a TV monitor using an RCA cable or BNC cable with RCA adapter. You can connect two monitors or TVs to the DVR unit.
- 3 VIDEO IN (or CHANNEL IN)**  
Connects cameras to the DVR. Each channel port (1 through 4) is for a single camera connection. A total of 4 cameras can be connected to the DVR unit.
- 4 ALARM**  
The alarm output terminal used to install a single alarm device.
- 5 SENSOR TERMINAL BLOCK**  
The sensor terminal block is used to connect up to to 4 motion sensors to the DVR. If you add motion sensor devices to your DVR, the video recording can be triggered by motion detection.
- 6 AC-DC POWER ADAPTER JACK**  
Connects the power adapter to the DVR. Some DVR models do not have a power adapter jack. Use only the DC adapter that comes with the unit. Some units contain a power supply that is enclosed in the unit.

### DVR SIDE PANEL

#### Removable hard disk drive drawer & keyhole

There is a removable hard disk drive drawer and keyhole located on the DVR side panel. The drawer makes it easy to replace or install a new hard disk drive for recording. Some DVR models have the hard disk drive drawer located on the front panel, however, the functionality and installation procedures are the same. Please refer to Chapter 4 - Hard Disk Drive Installation for more information.

The following features are found on HT-Series DVR Models only, other DVR models do not have these features:

#### AUDIO IN (HT-Series DVR models only) **HT**

Use this port to connect the DVR to cameras that have a microphone function to record sound.

#### AUDIO OUT (HT-Series DVR models only) **HT**

Connects the DVR to the AUDIO IN port on your TV so that you can hear recorded sound from TV speakers through the DVR.

#### LAN (HT-Series DVR models only) **HT**

Connects the DVR to your computer or routing device such as a DSL modem or hub using a LAN cable for remote viewing.

#### ADDITIONAL CAMERA INPUT (HT-Series DVR models only) **HT**

This is an extra camera connection port to DVR. If you use this terminal block port for the camera connection, you don't need to use an additional power adapter to supply power to the cameras connected to the DVR. The DVR will supply power to each camera connected.

#### LAN Port (HT-Series DVR models only) **HT**

The LAN (RJ-45) jack is used to connect the DVR to a Local Area Network. This allows you to control the DVR for remote viewing via the internet.

Below is an overview of the installation steps required get your DVR unit working. Each step is explained in detail in Chapter 4 - Hardware Installation.

- (1) Install a hard disk drive.
- (2) Connect the DVR to a TV set or monitor.
- (3) Connect cameras (up to 4) to the DVR.
- (4) Connect optional accessories (sensors or alarm).
- (5) Connect the LAN cable between DVR and network switch or router.

**(HT-Series DVR models only) HT**

- (6) Connect the power.
- (7) Turn the power on.
- (8) Start TV Monitoring and recording.


### General Operating Advice:

- Make sure that a hard disk drive and at least one camera is properly installed (see Chapter 4 -Hardware Installation)
- The hard disk jumper setting must be set to master (Refer to Chapter 4 - Hard Disk Drive Installation for more information.) Otherwise, the DVR may not recognize the hard drive.
- After installation of the hard drive, the hard drive drawer must be locked with the key or the DVR will not recognize the hard drive. (Refer to Chapter 4 - Hard Disk Drive Installation for more information).
- The hard drive capacity varies according to the particular model number of your DVR. Please refer to the table on page 5 for information regarding the specific hard drive capacity of your DVR model.
- The firmware used in Safe Home World DVR's is not compatible with your computer's operating system (i.e. Windows). Therefore, you cannot take the hard drive from a Safe Home World DVR and install it in your computer to view recorded video.
- Safe Home DVRs offer you the flexibility to choose a recording frame rate (maximum rate: 30 frames per second). A faster frame rate provides a more natural motion in recorded video and require more hard disk drive storage space. You may reduce the frame rate (minimum rate: 1 frame per second) to fit longer recording sessions on your hard disk. Refer to the Recording Time Table on page 46 for more information.
- The default setting for cameras during the initial power up of your DVR is set to OFF. You will see a blue screen in quad mode with no camera images (refer to page 23 for instructions on how to select cameras for viewing and recording). When the DVR starts up, it enters the default operational state: VIEW mode. In this mode the DVR does not record or play the recorded stream, it just shows the current images from each camera connected to the DVR.
- The default recording setting for most Safe Home DVRs is set to EACH mode, 30 frames per second and normal video quality. If you select four cameras to record using a 120GB hard drive (HDD), you should be able to record for about four to five days (at 30 frames per second). This is an approximate estimate. Refer to the Recording Time Table on page 46 for more information.
- There is an exception to entering the VIEW mode at start up. If the power is turned off while recording (i.e. a power failure), the DVR will enter POWER RECOVERY mode at start up and detect that it has been shut down by a power failure, it will then reinitiate the recording process.


**Refer to Chapter 4 - Hardware Installation for more information on installation procedures.**

### HARD DISK DRIVE INSTALLATION

Some models do not come with hard disk drive. Check the chart located on page 5 to see if your DVR model comes bundled with a hard disk drive. The installation process is the same for all models.


- 1**  Pull the hard drive drawer out from the DVR side panel.

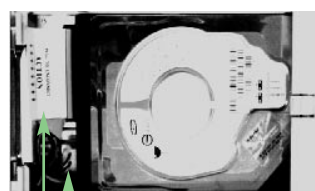
*Some models have different HDD rack style and position, however the procedure is same.*

- 2**  Open the top cover of the drawer. You are now ready to install the hard drive in the hard drive drawer.

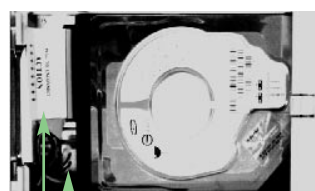
- 3**  Check to verify the hard drive's jumper setting.


**Important:** The jumper setting must be set to "master". Check the jumper setting diagram on your hard drive or consult your hard drive manual for instructions.

  
IDE Connector      Jumper Pins      Power Connector


- 4**  Firmly connect the ribbon cable (IDE cable) & power cable to the hard drive interface and carefully slide the hard drive into place.

Fasten the hard drive to the hard drive drawer using the supplied screws.


  
Power Cable  
Ribbon (IDE) Cable

- 5**  Slide the cover into place and install the hard drive drawer into the DVR.

The hard drive drawer should fit flush with the side panel of the DVR.

- 6**  Lock the hard drive drawer by turning the key clockwise.

**Important:** If you do not lock the hard drive drawer, the DVR will not recognize the hard drive.

- 7**  Power up the DVR using the switch located on the back panel of the DVR.
- The DVR will automatically format the hard drive the first time you turn it on. You will see a green light on the DVR side panel to the right of the hard drive drawer, which indicates that the hard disk drive is now powered up and running.

**For more information about the hard disk drive jumper settings, visit the web sites of major HDD manufacturers:**

#### Western Digital

<http://support.wdc.com/techinfo/general/jumpers.asp>

#### Maxtor

[http://www.maxtor.com/en/documentation/installation\\_guides/ata\\_installation\\_guide.pdf](http://www.maxtor.com/en/documentation/installation_guides/ata_installation_guide.pdf)

#### Seagate

[http://www.seagate.com/support/kb/disc/ref/jumper\\_settings.html](http://www.seagate.com/support/kb/disc/ref/jumper_settings.html)

#### IBM

<http://www-3.ibm.com/pc/support/site.wss/document.do?Indocid=GSMH-3FCCKZ>

#### Hitachi

<http://www.hgst.com/hdd/support/jumpers.htm>

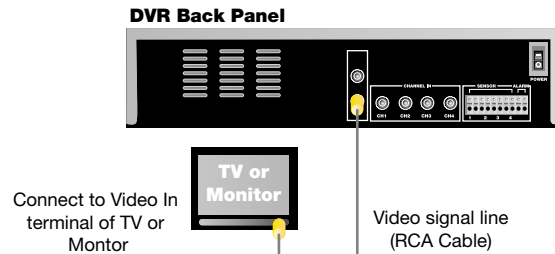
#### Fujitsu

<http://www.fujitsu.com/support/computing/storage/hdd/eol/dhdd/>



## CONNECTING THE DVR TO YOUR TV SET OR MONITOR

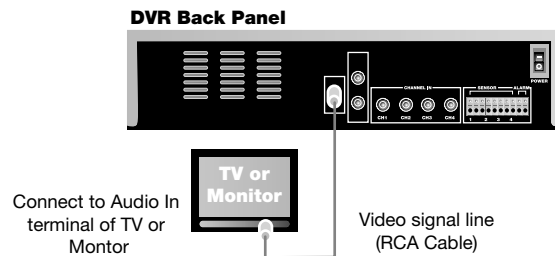
### 1 Video Input/Output Connection (For TV / monitor screen display)



To display the DVR's picture, the video output signal need to be transferred to your TV set or monitor. Any TV set that has a VIDEO INPUT terminal is suitable for displaying the picture. The figure above shows the video signal line connection.

Using an RCA cable, connect the VIDEO IN terminal of your TV to the VIDEO OUT terminal of your DVR rear panel. **Note:** The RCA cable required for this connection does not come packaged with the DVR.

### 2 Audio Input/Output Connection (For TV / monitor speaker) (HT-Series DVR models only) HT



Using an RCA cable, connect the AUDIO IN terminal of your TV / monitor to the AUDIO OUT terminal of your DVR rear panel.

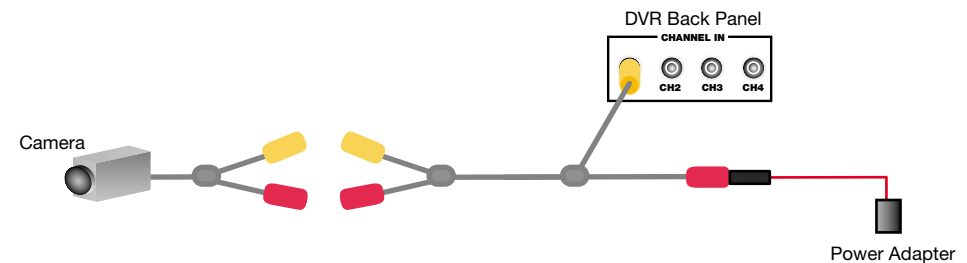
**Note:** The RCA cable required for this connection does not come packaged with the DVR.

## CAMERA INSTALLATION

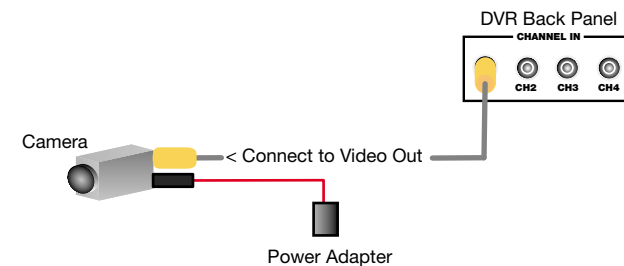
### 1 For cameras that do not have a built-in microphone

If you've purchased a Safe Home DVR equipped with cameras and 60-foot cables, connect the cables to the VIDEO IN or CHANNEL IN terminal on the back panel of your DVR. Next, plug in the camera power adapter.

**Connection Type 1** – For Safe Home World indoor/outdoor cameras or other brands that come with a splitter cable



**Connection Type 2** – For cameras that have a VIDEO OUTPUT terminal on the rear panel of the camera body.



Some DVR models don't include cameras in the package. You can purchase Safe Home World indoor/outdoor cameras separately from a retailer that carries Safe Home Products, or buy them on line at [www.SafeHomeWorld.com](http://www.SafeHomeWorld.com).



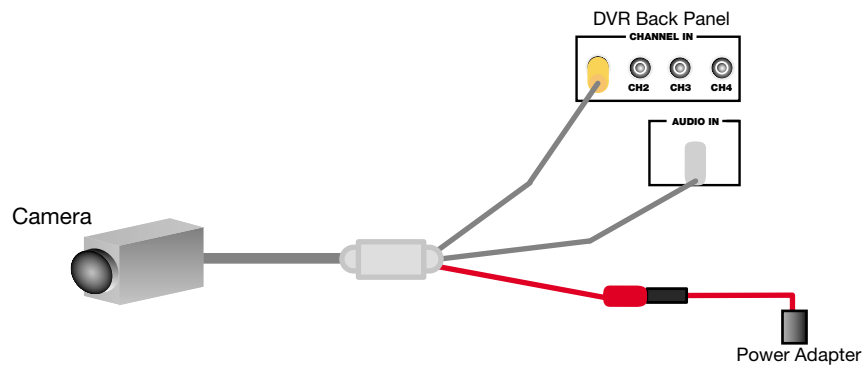
### CAMERA INSTALLATION

#### 2 For cameras that do have a built-in microphone (HT-Series DVR models only) **HT**

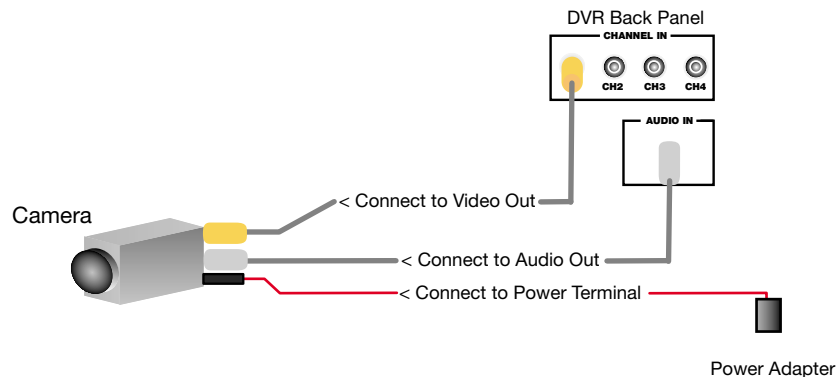
If you've purchased a Safe Home DVR model that has audio recording capability (such as the HT-Remote-JN03-16) and you would like to install cameras that have a built-in microphone, follow the diagram below for installation.

Note: You need to have a HT-Series Safe Home DVR model and a camera with a built-in microphone for this type of connection.

**Connection Type 1** – For cameras that have a video/audio splitter cable.



**Connection Type 2** – For cameras that have video/audio terminals on the rear panel of the camera body.

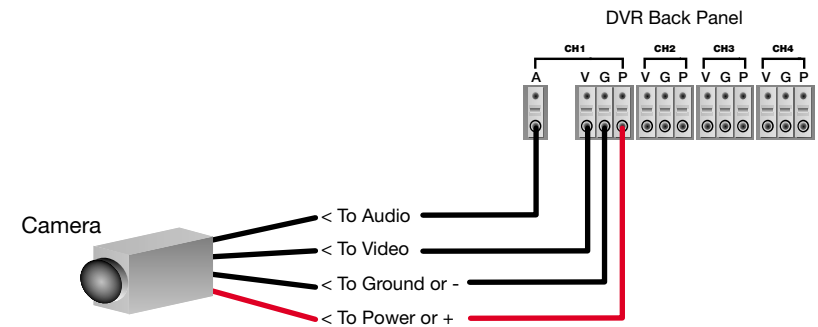


### CAMERA INSTALLATION

#### 3 Using Terminal Blocks To Connect Cameras (HT-Series DVR models only) **HT**

By connecting cameras to the terminal block, you can eliminate the need for a separate power supply to the cameras. Refer to the diagram below for information on how to connect cameras using the DVR's terminal block.

Note: You need to have a HT-Series Safe Home DVR model and a camera with a built-in microphone for this type of connection.



**CAUTION:** The power line may contain high voltage electricity. Unplug the DVR and turn the power off before attaching the camera cables/wires to the terminal block.

### SENSOR INSTALLATION (MOTION DETECTORS)

You can connect up to 4 motion sensors (not included in the DVR package) to the DVR.

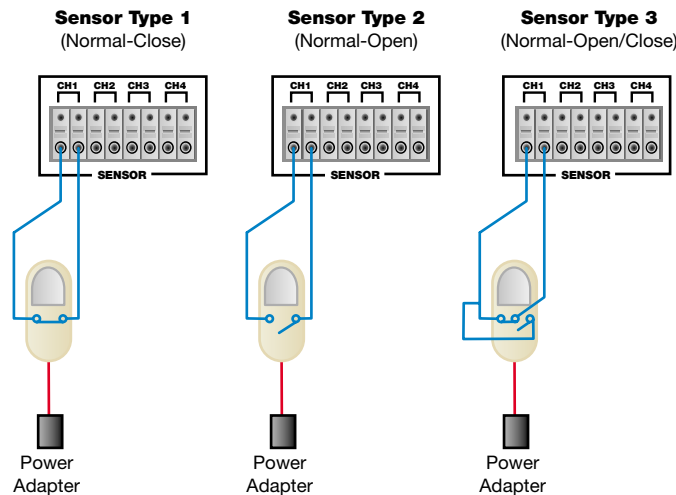
There are two steps to install sensors.

1. Connect the sensor signal lines to the signal input terminal.
2. Connect the sensor power lines to the appropriate power source.

In general, there are three different types of sensors available. They are:

- (1) Normal-Close
- (2) Normal-Open
- (3) Normal-Close & Open

Refer to the diagram below for information on how to connect each type of sensor to the DVR.



#### General Operating Advice When Using Sensors

- After you install sensor(s), the programmed recording mode must be set to "S" for "sensor" during the hour that you are recording (Refer to Chapter 5 - Record Schedule Setup for more information).
- If the DVR is set to QUAD mode and a sensor trips, all of the selected cameras will record. However, if you are in EACH mode and a sensor trips, only the corresponding camera will record (i.e. sensor one corresponds with camera one).
- Contact an authorized dealer for information about buying the appropriate sensors for your needs and for information concerning proper installation procedures.

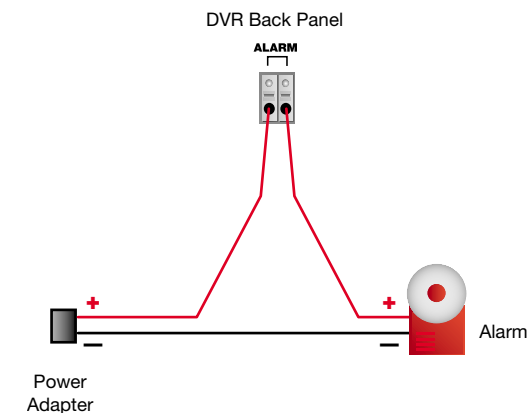
### ALARM INSTALLATION

The DVR has an internal switch for sounding an alarm. When a sensor is triggered, the alarm is activated as well. (Some Safe Home World DVR models may have different rear panel. However, operation, functionality, and cable connection are same for all DVR models).

There are two steps to install an alarm.

1. Connect the alarm power lines to the alarm switch terminal.
2. Connect the alarm power lines to the appropriate power source.

Refer to the diagram below for information on how to connect an alarm to your DVR.

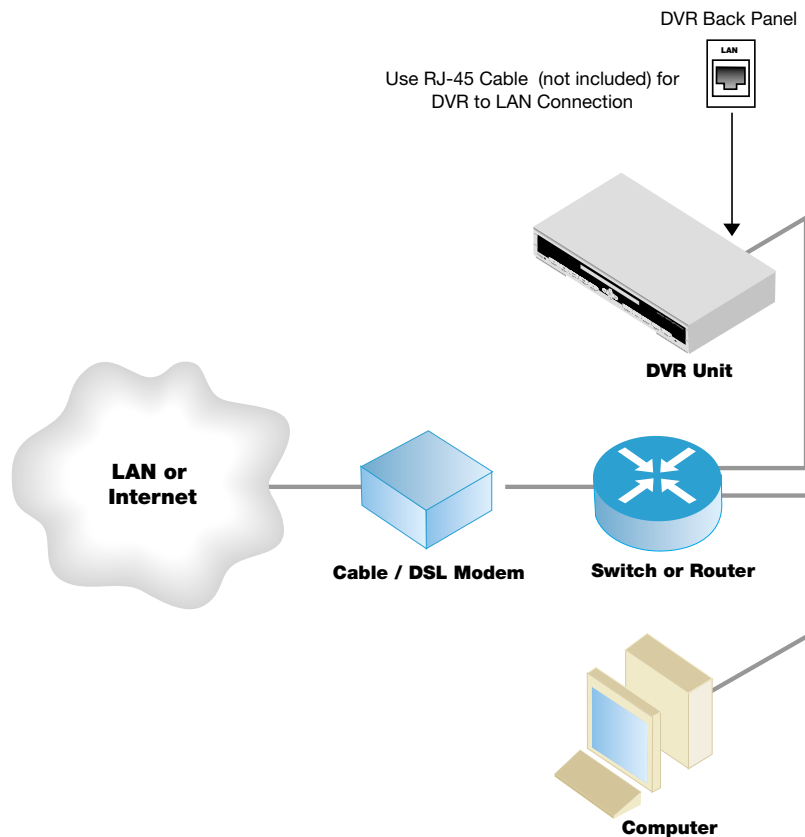


**Note:** Contact an authorized dealer for information about buying the appropriate alarm for your needs and for information concerning proper installation procedures.

### LAN-DVR CONNECTION

(HT-Series DVR models only) **HT**

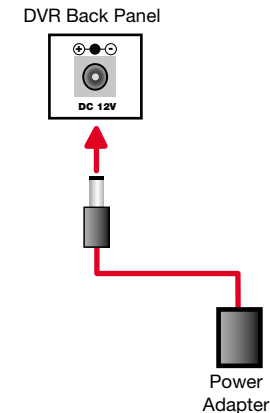
You can connect your DVR to a local area network or to the internet. See the diagram below to make the LAN connection. For remote viewing from your computer, you must have a LAN connection or Internet access to use this feature. Refer to Chapter 5 - NETWORK SETUP for information on how to set up the DVR for remote controlling.



**Note:** Suitable network routers and switches are available from Netgear, D Link, or Linksys. Your internet connection requires a dedicated static IP address from your DSL provider and port forwarding capability on your router.

### POWER CONNECTION

Connect the power adapter to the power adapter jack located at the rear panel of the DVR unit.



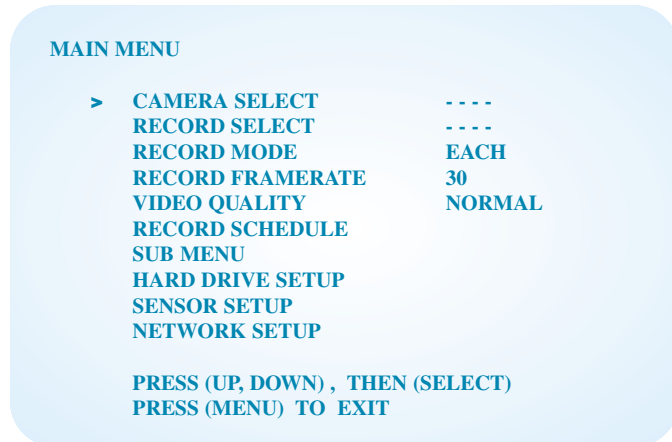
**Note:** Some DVR models do not have a power adapter jack, they have a power cable attached directly to the DVR. In this case, plug the power cord into an outlet.

Now, the DVR is ready to run! Turn on the power button at the rear side of the DVR. The next chapter will explain the about the DVR menu and how to operate your DVR.

## MAIN MENU

In order to select cameras for recording, set recoding quality, schedule recording times and to set other operation parameters, you will need to access the DVR's menu.

To access the DVR's main menu, push the menu button **MENU** on the DVR's front panel. You will see the following screen on the monitor connected to the DVR.



In the main menu, the arrow indicator **>** will be shown on the screen to the left of the menu listings menu selections. Press the UP **UP** or DOWN **DOWN** key on the DVR front panel to move the arrow sign **>** up or down in order to navigate to the menu selection desired.

**(HT-Series DVR models only)** **HT**

NETWORK SETUP options are available for HT-Series models only.

**Note about Model HT-Remote-JN03-16:** The images per second (or fields per second) ratings of Safe Home DVRs is based estimated performance locally or on a LAN. However, when events are viewed remotely via the Internet, the images-per-second rate of HT-Remote-JN03-16 could be as low as 0.5 images/second or 1 image/second. This is the result of the JPEG data frame size when combined with the Internet infrastructure characteristics that are beyond our control.

## CAMERA SELECT

To select cameras for viewing on your monitor, navigate to CAMERA SELECT.

Then, use the buttons **1** **2** **3** **4** on the DVR's front panel to select a camera for real-time viewing on the monitor screen.

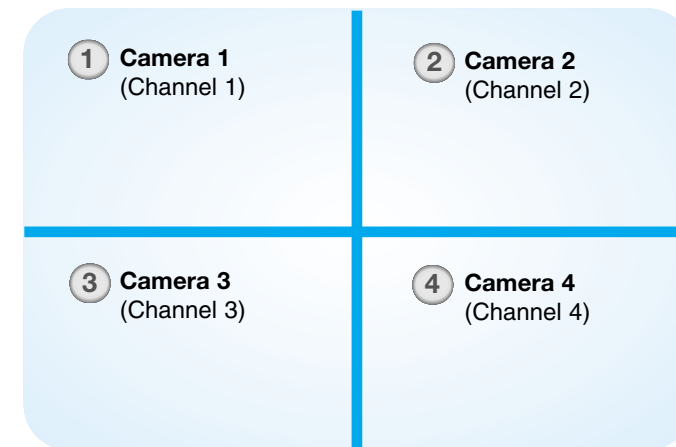


You can also press the select button **SELECT** for different combinations of camera viewing. For example,

- When you choose ( - - - - ), all cameras will be disabled.
- When you choose ( 1 2 3 4 ), all cameras will be operational.
- When you choose ( - - - 4 ), only camera 4 will be operational.
- When you choose ( 1 2 - 4 ), cameras 1, 2, and 4 will be operational.

There are 16 different combinations of camera viewing settings.

**Note:** When viewing in quad screen mode, the following diagram shows where each camera is displayed on the monitor connected to the DVR:



## RECORD SELECT

To select cameras for recording, navigate to RECORD SELECT.

Then, use the buttons ① ② ③ ④ on the DVR's front panel to select a camera for recording.



You can also press the select button **SELECT** for different combinations of camera recording. For example,

- When you choose ( - - - - ), no cameras will record.
- When you choose ( 1 2 3 4 ), all cameras record.
- When you choose ( - - - 4 ), only camera 4 will record.
- When you choose ( 1 2 - 4 ), cameras 1, 2, and 4 will record.

*There are 16 different combinations of camera record settings.*

**Note:** Only the selected camera(s) will record real-time events during recording period.

## RECORD MODE

To select a recording mode, navigate to RECORD MODE.

Then, press the select button **SELECT** to choose either EACH or QUAD mode.



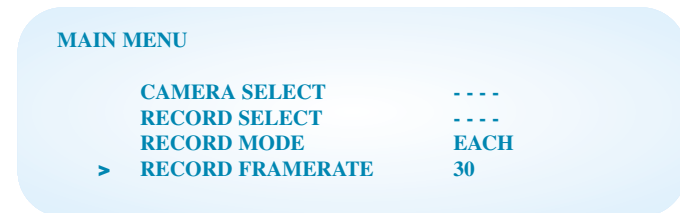
When recording with 4 cameras in QUAD mode, you will view the most natural movement on playback. EACH mode supports higher quality recording at a reduced frame rate.

**Example:** EACH mode + 4 cameras + 30 frames per second = each camera will record at approximately. 7.5 frames per second.

## RECORD FRAME RATE

To select cameras for recording, navigate to RECORD FRAME RATE.

Then, use the select button **SELECT** to choose the desired frame rate for recording.



The factory default setting is 30, which means the DVR records at the speed of 30 frames per second. The higher the record frame rate, the more natural motion will be displayed on the screen for playback. The lower the record frame rate, the more space you will save on the hard disk drive. There are different record frame rate settings to choose from (between 30 frames and 1 frame per second).

## VIDEO QUALITY

To choose the video quality for recording, navigate to VIDEO QUALITY.

Then, use the select button **SELECT** to choose either LOW, NORMAL or HIGH.



The higher the video quality, the clearer the image will be during playback. The lower the video quality, the more space you will save on the hard disk drive.

**Note:** The video quality in View Mode is not affected by the video quality setting. These settings only affect the video quality during playback of recorded video.

### RECORD SCHEDULE

To schedule recording a specified times throughout the day, navigate to RECORD SCHEDULE.

#### MAIN MENU

CAMERA SELECT ----  
 RECORD SELECT ----  
 RECORD MODE EACH  
 RECORD FRAMERATE 30  
 VIDEO QUALITY NORMAL  
 > RECORD SCHEDULE

Then, press the select button **SELECT** to display the following menu:

#### PROGRAMMED RECORD

V  
 + T +  
 | | | | | | | | | | | | | | | | | | | | | | | | | |  
 0 3 6 9 12 15 18 21 24

PRESS (UP, DOWN) , THEN (SELECT)  
 PRESS (MENU) TO EXIT

The numbers below indicate the hours of the day based on a 24-hour clock. The first "T" on the left is equal to the first hour of the day (12 midnight through 1:00 am). The next "T" equals the second hour of the day (1:00 am – 2:00 am), and so on.

Press the up **UP** or down **DOWN** button on the DVR's front panel to move the arrow **V** to the desired time selection.

Then press the select button **SELECT** to change between continuous recording (T), sensor recording (S) and no recording (--) for the selected time slot.

(T) System will record continuously during this period.

(S) System will record when sensor is triggered (see page 18 & 19).

(--) System will not record during this period.

Once you have finished, press the menu button **MENU** to exit.

**Note:** You must press the record button **REC** to start a recording session.

### SUB MENU

To change a password, set the time for your DVR, or to turn audio recording on or off, navigate to SUB MENU.

#### MAIN MENU

CAMERA SELECT ----  
 RECORD SELECT ----  
 RECORD MODE EACH  
 RECORD FRAMERATE 30  
 VIDEO QUALITY NORMAL  
 > SUB MENU

Then, press the select button **SELECT** to display the following menu:

#### SUB MENU

> PASSWORD CHANGE  
 TIME SET  
 AUDIO RECORD [ON]  
 AUDIO MUTE [OFF]  
  
 PRESS (UP, DOWN) , THEN (SELECT)  
 PRESS (MENU) TO EXIT

**Note:** Audio set-up options are available only for HT-Series models.

### SUB MENU - PASSWORD CHANGE

To change a password, navigate to PASSWORD CHANGE in the SUB MENU and press the select button **SELECT**

The following screen will appear:

CURRENT PASSWORD : .....  
NEW PASSWORD : .....  
PASSWORD CONFIRM : .....

The Factory Default Password is 111111. To enter this number press the button labeled 1 **1** on the front panel of the DVR six times.

Once you input the your current password, set a new six digit password using the numbered buttons **1 2 3 4** on the front panel of the DVR.

Then, confirm your new password by entering the number again.

When the new password is accepted, the following screen message will flash:  
**PASSWORD CHANGED**

The message will blink 3 times. Then the SUB MENU will return. If the password is not accepted, you will receive a message that informs you that it was not accepted and the SUB MENU returns. You may try again by repeating the same steps.

### SUB MENU - TIME SET

To set the date and time, navigate to TIME SET in the SUB MENU and press the select button **SELECT**

The following screen will appear:

TIME  
2004/02/17 19:44:32  
^  
PRESS (UP, DOWN) , THEN (SELECT)  
PRESS (MENU) TO EXIT

2004/02/17 = year/month/day 19:44:32 = hour/minute/second

Use the up **UP** and down **DOWN** buttons on the front panel to move the arrow ^ below the number you wish to change. Then press the select button **SELECT** to change the numeric values.

### SUB MENU - AUDIO CONTROL

(HT-Series DVR models only) **HT**

AUDIO RECORD & AUDIO MUTE options are available for HT-Series models only.

To set recording with or without audio, or to set audio to mute, navigate to AUDIO RECORD or AUDIO MUTE in the sub menu and press the select button **SELECT** to turn these features on or off.

SUB MENU  
PASSWORD CHANGE  
TIME SET  
> AUDIO RECORD [ON]  
AUDIO MUTE [OFF]  
PRESS (UP, DOWN) , THEN (SELECT)  
PRESS (MENU) TO EXIT

When you move the arrow to AUDIO RECORD and push the select button, the option will be changed to ON or OFF. If the option is ON then the audio will be recorded onto the hard drive when you push RECORD button.

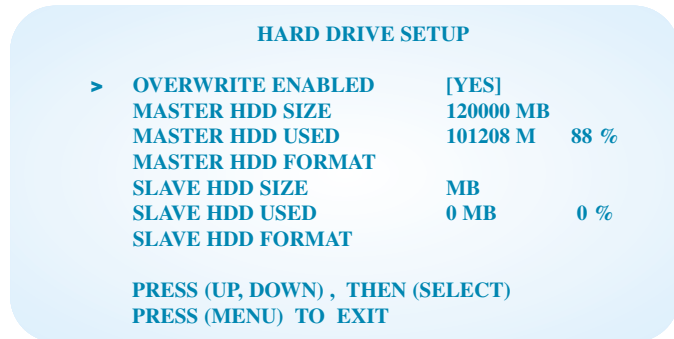
When you move the arrow to AUDIO MUTE and push the select button, the option will be changed to ON or OFF. If the option is ON then the speaker output at DVR box will be mute. Even though this option is OFF, the recording of audio depends upon the AUDIO RECORD option.



## HARD DRIVE SETUP

To setup your hard disk drive, navigate to HARD DRIVE SETUP in the main menu and press the select button **SELECT**.

The following screen will appear:



To navigate and to make the desired selections use the up **UP** down **DOWN** and select buttons **SELECT** on the front panel of the DVR unit.

**OVERWRITE ENABLED:** If you choose YES (default setting), recording continues and over writes previous recording when hard disk drive space is full. If you choose NO, the recording session stops when all hard disk drive is full.

**MASTER HDD SIZE:** This shows the size of the primary hard disk drive installed in the DVR.

**MASTER HDD USED:** This shows the space used on the first hard disk drive for recording.

**MASTER HDD FORMAT:** If you format the hard drive, all the data recorded on the first hard disk drive will be erased.

**SLAVE HDD SIZE:** This shows the space available that the secondary hard disk drive has in the DVR.

**SLAVE HDD USED:** This shows the space used on the secondary hard disk drive for recording.

**SLAVE HDD FORMAT:** If you format the hard drive, all the data recorded on the secondary hard disk drive will be erased.

**Note:** Your DVR may not support a slave hard drive.

## HARD DRIVE FORMAT - PART A

The following instructions apply to DVR units that came packaged with a hard disk drive. If your DVR did not come with a hard disk drive, or you are installing a third party hard disk drive, refer to HARD DRIVE SETUP - PART B on page 32.

To format your hard disk drive, navigate to MASTER HDD FORMAT in the HARD DRIVE SETUP menu and press the select button **SELECT**.

The following screen will appear:

**PASSWORD INPUT (6) : \_ \_ \_ \_ \_**

Use the numeric buttons ① ② ③ ④ on the front panel of the DVR unit to enter the correct password.

When you enter the correct password, the following message will flash 3 times.

**PASSWORD CORRECT**  
**HARD DISK FORMATTED**

Otherwise, the following error message will be displayed on the screen.

**PASSWORD INCORRECT**

**Note:** The Factory Default Password is 111111. To enter this number press the button labeled 1 ① on the front panel of the DVR six times.

## HARD DRIVE FORMAT - PART B

The following instructions apply to DVR units that did not come packaged with a hard disk drive, or if you are installing a third party hard disk drive.

### 1. TO INSTALL A NEW HARD DISK DRIVE:

When you install new hard disk drive, you will see the following screen displayed while the DVR unit is booting up:

CHECKING HDD.....

MASTER[IC35L040AVVN07-0 ]-NEW  
DVR NEEDS TO FORMAT HDD  
ALL DATA WILL BE LOST  
(SELECT)FORMAT/(MENU)CANCEL?

Press the select button **SELECT** to continue formatting the master hard disk drive.

Press the menu button **MENU** to cancel formatting. If you choose this option, the DVR system will not format the hard drive. It will not be used or recognized by the DVR system. However, the next time the DVR boots up, it will ask you to format the hard drive continuously.

### 2. TO INSTALL A USED HARD DISK DRIVE:

If you attach a hard drive that was used in another DVR system that was from Safe Home World, you will see "-USED" which indicates the attached hard drive could contain some important video footage, but the hard drive format is different. If you want to use the hard disk drive with this system, you must format it.

CHECKING HDD.....

MASTER[IC35L040AVVN07-0 ]-USED  
DVR NEEDS TO FORMAT HDD  
ALL DATA WILL BE LOST  
(SELECT)FORMAT/(MENU)CANCEL?

Press the select button **SELECT** to continue formatting the master hard disk drive.

Press the menu button **MENU** to cancel formatting. If you choose this option, the DVR system will not format the hard drive. It will not be used or recognized by the DVR system.

## SENSOR SETUP

To set up recording that is activated by a motion sensor connected to the DVR, navigate to SENSOR SETUP.

### MAIN MENU

CAMERA SELECT	----
RECORD SELECT	----
RECORD MODE	EACH
RECORD FRAMERATE	30
VIDEO QUALITY	NORMAL
RECORD SCHEDULE	
SUB MENU	
HARD DRIVE SETUP	
> SENSOR SETUP	

Then, press the select button **SELECT** to display the following menu:

### SENSOR SETUP

> SENSOR RECORD TIME	10
ALARM OUT TIME	00
CHANNEL-1	NOT INSTALLED
CHANNEL-2	NOT INSTALLED
CHANNEL-3	NOT INSTALLED
CHANNEL-4	NOT INSTALLED

PRESS (UP, DOWN) , THEN (SELECT)  
PRESS (MENU) TO EXIT

**SENSOR RECORD TIME:** Indicates the time recording period after the sensor's last detection of movement.

**ALARM OUT TIME:** Indicates how long the alarm lasts after it sets off.

SENSOR RECORD TIME and ALARM OUT TIME are measured in seconds.

**Note:** You must have sensors connected to your DVR unit to use this feature. For more information on sensors, refer to Chapter 4 - SENSOR INSTALLATION on page 18.

## SENSOR SETUP (CONTINUED)

There are 3 different modes for sensor activated recording:

1. NOT INSTALLED (no sensors are connected to the DVR unit)
2. TYPE: NORMAL-OPEN
3. TYPE: NORMAL-CLOSE

The type of sensor should be selected to match the type of sensor connected to your DVR. Check the materials that came with your sensor, or contact the manufacturer to see what type of sensor you have.

To set the mode for sensor activated recording, navigate to each channel and press the select button **(SELECT)** to choose either NOT INSTALLED, TYPE: NORMAL-OPEN, or TYPE: NORMAL-CLOSE.

### SENSOR SETUP

	SENSOR RECORD TIME	10
	ALARM OUT TIME	00
>	CHANNEL-1	TYPE: NORMAL-CLOSE
	CHANNEL-2	TYPE: NORMAL-OPEN
	CHANNEL-3	TYPE: NORMAL-CLOSE
	CHANNEL-4	TYPE: NORMAL-OPEN

PRESS (UP, DOWN) , THEN (SELECT)  
PRESS (MENU) TO EXIT

In NORMAL-CLOSE mode, if an intruder cuts the cable line that connects the sensor to the DVR, sensor recording starts automatically. In NORMAL-OPEN mode, if an intruder cuts the cable line that connects the sensor to the DVR, the sensor recording will not start at all.

## NETWORK SETUP

(HT-Series DVR models only) **HT**

NETWORK SETUP is available for HT-Series models only.

If you plan to connect your DVR unit to a network, navigate to NETWORK SETUP.

### MAIN MENU

CAMERA SELECT	----
RECORD SELECT	----
RECORD MODE	EACH
RECORD FRAMERATE	30
VIDEO QUALITY	NORMAL
RECORD SCHEDULE	
SUB MENU	
HARD DRIVE SETUP	
SENSOR SETUP	
> NETWORK SETUP	

Then, press the select button **(SELECT)** to display the following menu:

### NETWORK SETUP

>	ACCEPT CLIENT	[YES]
	MAC ADDR	00.22.24.23.25.26
	IP ADDR	192.168.001.090
	SUBNET	255.255.255.000
	GATEWAY	192.168.991.245

PRESS (UP, DOWN) , THEN (SELECT)  
PRESS (MENU) TO EXIT

**Important!:** The MAC ADDRESS is issued by the manufacturer and should be on a label located on the back of your DVR. Keep this number in a safe place for future reference. If you have a battery failure, replace the on-board backup battery and re-input the MAC ADDRESS.

The IP ADDRESS, SUBNET and GATEWAY above are only used for an example. Do not use them for your NETWORK SETUP.

The IP ADDRESS, SUBNET and GATEWAY are provided by your Internet Service Provider (ISP) when you setup your account. Keep your ISP account information in a safe place for future reference.

## NETWORK SETUP (CONTINUED)

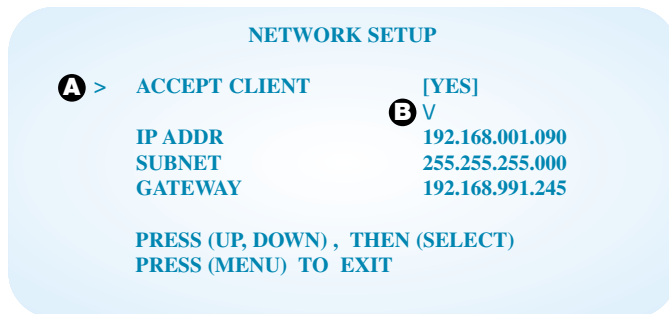
(HT-Series DVR models only) **HT**

NETWORK SETUP is available for HT-Series models only.

1. When you first open the NETWORK SETUP window, the arrow will be next to ACCEPT CLIENT. While the arrow is next to ACCEPT CLIENT, use the select button **SELECT** to change the status (YES/NO).
2. Use the up **UP** and down **DOWN** buttons to move the arrow to the other categories in the NETWORK SETUP menu.
3. To change the numbers in MAC ADDR, IP ADDR, SUBNET and GATEWAY, move the arrow next to the specific category that you want to change (i.e. IP ADDR).

4. When you press the select button **SELECT** the arrow will move to position B above the category you have chosen (Refer to the diagram below).

**Note:** When the arrow moves to position B, the category above will disappear to make room for the arrow. For example, if you select IP ADDR, the arrow moves above the farthest left digit of IP ADDR and MAC ADDR disappears.



5. Use the up **UP** and down **DOWN** buttons to move the arrow from left to right and use the select button **SELECT** to change the numbers.
6. Once you have finished making your changes, press the menu button **MENU**. The arrow will return to position A (Refer to the diagram above).

### ABOUT NETWORK SETTINGS:

**ACCEPT CLIENT:** If the ACCEPT CLIENT option is set as [YES], remote DVR access control is enabled so you can control your DVR remotely via a LAN connection using the "Remote DVR Client" software included on CD in the DVR package. If ACCEPT CLIENT option is set as [NO], the Remote DVR Client will not be able to access your DVR from remote location.

**MAC ADDR:** On a local area network (LAN), the MAC (Media Access Control) address is your computer's unique hardware identity number. (On an Ethernet LAN, it is the same as your Ethernet address.) When you are connected to the Internet from your computer (or host as the Internet protocol thinks of it), a corresponding table relates your IP address to your computer's physical (MAC) address on the LAN.

**IP ADDR:** Within an isolated network, you can assign IP addresses at random as long as each one is unique. However, connecting a private network to the Internet requires using registered IP addresses (called Internet addresses) to avoid duplicates. The IP address is assigned by your Internet Service Provider (ISP), but you may assign values to the lowest digits of the address (to designate unique addresses for your DVR, your PC and other devices on your LAN). Contact your ISP for more information regarding to your own IP address.

**SUBNET:** This refers to a subnet mask used to determine what subnet an IP address belongs to. A number that is used to identify a sub network so that IP addresses can be recognized on a local area network.

**GATEWAY:** In enterprises, the gateway is the computer that routes the traffic from a workstation to the outside network that is serving the web pages. In homes, the gateway is usually housed at the ISP. The gateway connects networks that have different protocols. The gateway address is provided by your ISP.

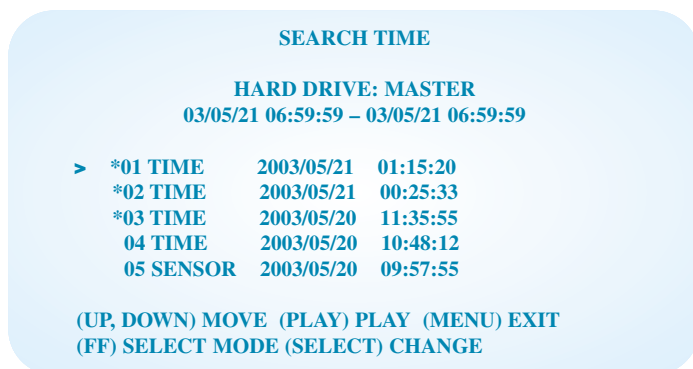
## PLAYBACK CONTROL BY TIME SEARCH

When you press the menu button  during PLAY mode, the SEARCH TIME menu will appear as shown below. With this menu, you can choose and playback a recorded event or manually input a specific time for playback.

### TO CHOOSE AND PLAYBACK A RECORDED EVENT FROM A LIST:

When you first open the SEARCH TIME window, the arrow will be pointing at the most recent event (\*01). The \* listed next to events (i.e. \*01, \*02 and \*03) indicate that they have not yet been viewed.

1. Use the up  and down  buttons to find the event that you want to view.
2. Press the PLAY button  to start playback of the event you have chosen.










03/05/21 = year/month/day  
06:59:59 = hour/minute/second

**Note:** When the arrow is pointing at a specific event, the date and time below HARD DRIVE: MASTER shows the beginning (date and time) to the ending (date and time) of that recorded event.

**Note:** While in "View" mode, the blinking red record light means that your most recently recorded event has not yet been viewed.

### TO MANUALLY INPUT A SPECIFIC DATE AND TIME FOR PLAYBACK:

1. Press the menu button  during PLAY mode to access the SEARCH TIME menu. The arrow will be next to the most recently recorded event (Position A shown below).
2. Press the FF button  on the front of your DVR. The arrow will move next to HARD DRIVE: MASER (Position B shown below).
3. Press the down button  and the arrow will move below the date and time references listed under HARD DRIVE: MASER (Position C shown below). The date and time displayed under HARD DRIVE: MASER corresponds with the beginning and ending period of what has been recorded on your hard drive. If you have set up your hard drive as a slave drive, the caption under SEARCH TIME will read HARDDRIVE: SLAVE.
4. Move the arrow left or right by using the up  and down  buttons.
5. Change the date and time digits by pressing the select button .
6. Finally, input the desired starting date and time, press the play button  and the DVR will start playing.



### VIEW CONTROL DURING PLAYBACK

If you have set the RECORD MODE to EACH (see page 24), you can use the following buttons on the DVR front panel to select the camera that you want to view in full screen during playback.

- ① This View button controls FULL SCREEN display from CH 1 (Camera 1)
- ② This View button controls FULL SCREEN display from CH 2 (Camera 2)
- ③ This View button controls FULL SCREEN display from CH 3 (Camera 3)
- ④ This View button controls FULL SCREEN display from CH 4 (Camera 4)

**ALL** Quad screen: Images from all 4 cameras are displayed at the same time in 4 separate sections on a single screen.

**Note:** You cannot view individual cameras in FULL SCREEN display while in QUAD mode. You can only view a quad screen when the RECORD MODE is set to QUAD (see page 24).

### RECORD CONTROL

When you have finished entering all of the settings in the DVR menu and the record button **REC** is pressed, the recording process starts immediately. In the example below, the recording channel indicators **■** next to CH1 and CH2 indicate that those channels have been selected to record. CH3 and CH4 are not recording.



### RESET TO FACTORY DEFAULT SETTINGS

To reset the DVR settings back to the factory default, press the pause button **II** 5 times. After resetting, the password will return to the default value (111111) and all DVR settings on the menu will return to default.

Reset to factory default will not erase any video data on the hard disk drive.



## TROUBLESHOOTING

**1. What kind of camera should I buy for this DVR?**

Any BNC or RCA interface indoor/outdoor/infrared camera will work with the DVR. It doesn't matter whether it's a color or black/white camera. However, web cameras that require a USB interface are not compatible with the DVR.

**2. What kind of sensor device should I buy for sensor recording?**

Any motion detection sensor will be compatible with our Safe Home DVR.

**3. What kind of alarm device should I buy for the DVR?**

Most DC-powered alarms are compatible with the Safe Home DVR.

**4. I can't turn on the DVR.**

Make sure that the power switch is on. If the power switch is on and you still can't turn on DVR, make sure that the power cord is plugged in correctly and the green power light on DVR front panel is on.

**5. I see nothing but a blue screen after I turn on the DVR.**

Check the camera input and video output connection on the DVR rear panel. If you can't find any problem with these connections, check whether the camera power cable is firmly connected.

**6. I pushed the menu button but it doesn't show the menu directory.**

When the DVR is in record mode no button on the front panel will work. The red light below REC button is on when DVR is recording. To end recording, press the STOP button.

**7. I see an HDD error message on the screen.**

If you see the error messages such as "Hard Disk Check Fail", "HDD' BUSY Error", "HDD' DRDY Error", "HDD' initial is Error", pull out and put in the hard disk drive or replace the hard disk. Also make sure that hard disk rack is firmly locked.

**8. I push record button but nothing records.**

Make sure that there are no slash ( -- ) signs on Record Schedule Menu. If you see any slash ( -- ) signs, change it to "T" sign using select button. Or change it to "S" sign if there are any sensors installed on the DVR and you prefer motion sensor recording.

**9. I turn on the DVR and no buttons work.**

Check if the hard disk rack is firmly locked. You will see a green light on the DVR side panel when DVR is locked turned on. Also, make sure hard disk drive jumper is set as a "master". If none of the above work, check the two connectors (power cable & IDE cable) from hard disk drive to DVR to see if they are firmly connected.

**10. I can't make each channel to display in full screen.**

Make sure that record mode setting is on EACH mode. If it's on QUAD mode, switch to EACH mode in the DVR's main menu.

**11. I installed only one camera to channel 1 but the channel 1 screen does not show anything.**

Under Menu and Camera Select, select 1.

**12. Can I record everything 24 hours 7 days a week without stopping?**

Yes. In the Record Schedule Menu, select "T" for all time periods.

**13. Can I prevent other people from stopping the recording while I am gone? Would creating a password do it?**

The only way to prevent this is to place the DVR in a room where nobody else can enter.

**14. Can I still record all the events while I review the previous recording?**

No. The DVR doesn't support recording during playback.

**15. How long is the warranty period?**

One year after the date of purchase. We will gladly offer replacement for all defective units.

**16. What is the correct jumper setting for using a single hard disk drive?**

Single master without slave. Most of HDD drives come with the jumper setting as a master without slave so you may not need to change the jumper setting after you purchase HDD and install it into DVR. Check the documentation that came with your hard drive.

**17. Can I install two hard drives in the Safe Home DVR?**

No. Our product supports just one hard disk drive bay.

**18. What is the limitation of the hard disk drive size that I can install in the DVR?**

The hard drive capacity varies according to the model number of your DVR. Please refer to the packaging, which your unit was purchased for information regarding the specific hard drive capacity of your model.

**19. How can I erase all data on the hard disk drive?**

Select the HDD Format option in the Hard Drive Setup menu.

**20. Why do I need a password?**

You need a password to format hard disk drive. The password is for your protection.



## TROUBLESHOOTING

**21. I forgot my password. What should I do?**

Press the "Pause" button five times and it will reset DVR settings to factory default. The password will reset to the factory default of (111111).

**22. Can my desktop PC read the video data on hard disk drive in DVR?**

No. The file format used on DVR is not supported by any PC operating systems, including Windows or Linux, so you can't access DVR hard disk drive using your PC.

**23. What happens if I install my PC hard disk drive into the DVR?**

You can use a PC hard disk drive in the DVR. However, once it runs in DVR, it will delete any PC operating system and files on the hard disk drive.

**24. What kind of hard disk drive should I purchase to make the DVR run?**

Any PC compatible IDE, ATA hard disk drive will work.

**25. Does the DVR come with sensors, cameras, or hard disk drive?**

Some models come with a hard disk drive and cameras. Some models don't. Please check the package content information on DVR box or "Safe Home DVR models" table in Chapter 1. If the DVR unit that you've purchased contains a digital video recording system only, then you need to buy accessories separately to complete a digital video recording surveillance system. A single hard disk drive and a single camera are minimum requirements to make a digital surveillance system complete.

**26. What is the capacity to record?**

It depends on the installed hard disk drive storage size. In general, you can record up to 6 months with a 120 GB HDD or up to 15 months with 300 GB HDD at the lowest quality setting recording at 1 frame per second. For more information about recording capacity, see "Recording Time Table" in Appendix B or in the table of the Safe Home World DVR model list table in Chapter 1.

**27. Does this DVR come with a remote control?**

No. The DVR kit does not support remote control.

## TECHNICAL SPECIFICATIONS

ITEM		DESCRIPTION	REMARKS
Video Input Format		NTSC / PAL	
Operating system		RTOS in firmware	
Video Input Channels		4CH Composite video	
Video Output Channels		2Ch Composite video	
Display frame rate	NTSC	120 frames/ sec	4 _ 30 frames/ sec
	PAL	100 frames/ sec	4 _ 25 frames/ sec
Recording frame rate (Quad mode)	NTSC	Max 30 fps (Quad)	
	PAL	Max 25 fps (Quad)	
Recording frame (Each Mode)	NTSC	Max 7.5 fps (Each mode) Each mode = MAX frame / number of video source	30 frame /s (per recording CH)
	PAL	Max 6.25 fps (Each mode) Each mode = MAX frame / number of video source	25 frame/s (per recording CH)
Recording Mode		Continuous, Manual, Event, Programmed	
Resolution	Display	NTSC : 720_480 PAL : 720_576	
	Recording	NTSC : 320_112, 640_224 PAL : 320_136, 640_272	Quad : 640_224(total) Each Channel : 640_224
Compression format (Each channel)		Modified MJPEG (12-20K bytes/ frame)	Low : 12KB/ frame Normal : 15KB/ frame High : 20KB/ frame

## RECORDING TIME TABLE

Based on 40GB of storage with the installation of 4 cameras.

### RECORDING CONDITIONS

Video Signal	Record Mode	Video Quality	30 fps	15 fps	7 fps	1 fps
NTSC*	QUAD	HIGH	18 Hours	36 Hours	72 Hours	540 Hours (22 days)
		NORMAL	24 Hours	48 Hours	96 Hours	720 Hours (30 days)
		LOW	29 Hours	58 Hours	116 Hours	870 Hours (36 days)
	EACH	HIGH	32 Hours	64 Hours	128 Hours	960 Hours (40 days)
		NORMAL	45 Hours	90 Hours	180 Hours	1,350 Hours (56 days)
		LOW	56 Hours	112 Hours	224 Hours	1,680 Hours (70 days)

\* The NTSC signal mode is used for most of televisions produced in the U.S.

### FRAME SIZE (ROUGH DATA SIZE)

Quality	High	Normal	Low
Size	20 K bytes / frame	15 K bytes / frame	12 K bytes / frame

- The figures in the Recording Time Table were estimated under ideal recording conditions and may vary from your actual recording situation.
- In the Recording Time Table, multiply by 2 for recording hours with an 80 GB HDD and 3 for recording hours with a 120 GB HDD.
- The complexity of the image and the amount of motion recorded greatly influences the recording capacity of your hard drive (HDD). The higher the frames per second and the higher the video quality setting, the lower your HDD recording capacity will be. In the same manner, the lower the frames per second setting and the lower the video quality setting, the higher your HDD recording capacity will be.
- Note that the lower frame rate does not mean a lower video quality. The video quality remains the same whether the frames per second setting is set high or low. One frame per second is the same as taking a photo every second.
- There are several factors that influence the recording capacity of your hard drive.
  - (a) The number of cameras used
  - (b) The recording mode – Quad vs. Each
  - (c) The number of frames recorded per second
  - (d) The video quality setting – High, Normal or Low

### (HT-Series DVR models only)

**Note about Model HT-Remote-JN03-16:** The images per second (or fields per second) ratings of Safe Home DVRs is based estimated performance locally or on a LAN. However, when events are viewed remotely via the Internet, the images-per-second rate of HT-Remote-JN03-16 could be as low as 0.5 images/second or 1 image/second. This is the result of the JPEG data frame size when combined with the Internet infrastructure characteristics that are beyond our control.